

REMARKS

In the Office Action, claims 1-11 and 14-22 were rejected. By the present Response, claims 1, 14 and 22 are amended. Upon entry of the amendments, claims 1-11 and 14-22 will be pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Rejections Under 35 U.S.C. § 102

The Office Action summarizes claims 1-11, 14-15 and 18-22 as rejected under 35 U.S.C. §102(b) as being anticipated by Oppitz (U.S. Patent No. 4,616,125). Independent claims 1, 14 and 22 and the claims depending therefrom are believed to be patentable for the reasons summarized below.

Claim 1

Claim 1 has been amended to include recitations regarding the conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. Thus, amended claim 1 now recites an apparatus with a self heating feature comprising at least one conductive component of the apparatus comprising conductive composite having electrodes at edges and a face of the conductive composite extending between the edges, wherein the at least one conductive component is adapted to couple with a source of electricity, and wherein the at least one conductive component heats up on passage of electricity. The conductive composite is a thermoformable component comprising an organic polymer and a nanosized conductive filler. The recitations of claim 1 are fully supported in the specification. *See, e.g.*, Paragraphs [00109], [00114], FIGS. 1, 2, 4, 5, 8, 9, 11, 13 and elsewhere.

Claim 14

Claim 14 has been similarly amended to include the recitations regarding the conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. Accordingly, amended claim 14 now recites a method for

providing heating in an apparatus. The method includes heating at least one conductive component of the apparatus, wherein the heating is done by passing an electric current through the conductive component, and wherein the at least one conductive component comprises a conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. Further, the conductive composite is a thermoformable component comprising an organic polymer and a nanosized conductive filler.

Claim 22

Claim 22 has been similarly amended to include the recitations regarding the conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. Amended claim 22 now recites an apparatus with a self heating feature comprising at least one conductive component of the apparatus comprising conductive composite having electrodes at edges and a face of the conductive composite extending between the edges, wherein the at least one conductive component is adapted to couple with a source of electricity, and wherein the at least one conductive component heats up on passage of electricity. The conductive composite is a thermoformable component comprising an organic polymer, a nanosized conductive filler and carbon fibers or graphite.

As can be seen, claims 1, 14 and 22 recite, in a generally similar language, a self heating apparatus including a conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. Further, the thermoformable component includes an organic polymer, a nanosized conductive filler and/or carbon fibers or graphite.

The Examiner argued that Oppitz discloses an apparatus with a self heating feature comprising a conductive composite adapted to couple with a source of electricity. Further, the Examiner observed that in some embodiments Oppitz teaches that the

conductive component comprises an insulating layer at least partially covering the conductive composite. In addition, the Examiner argued that Oppitz discloses that synthetic resin is thermoformable.

Applicants respectfully submit that Oppitz teaches a heating element that includes a resistance layer disposed between two planar electrodes. The resistance layer includes a matrix of an electrically conductive synthetic resin material having a positive temperature coefficient (PTC) of electrical resistance. A particulate thermally and electrically insulating filler material is dispersed throughout the synthetic resin material matrix. The heating element is installed in a manner such that the surface of a heat barrier plate rests on a floor structure, e.g. on coarse concrete flooring. In particular, Oppitz teaches that the heating element includes electrodes that are disposed on opposite sides of the electrical resistance layer.

Applicants respectfully submit that Oppitz does not teach the conductive composite having electrodes at edges and a face of the conductive composite extending between the edges. On the contrary, due to the nature of the PTC material, Oppitz *necessarily* places the electrodes on the *faces* of the material and *not* on the edges. The sheet-like material thus conducts current between the faces in contact with the electrodes.

The invention recited in the pending claims is exactly the opposite. Because it is intended for use as a panel or for forming an article, the expanse of its faces are *not* covered by the electrodes. These are, rather, connected to edges of the panel or article.

By virtue of this arrangement, the conductive component of the invention is adaptable to various environments, such as domestic appliances, for example, refrigeration systems, air conditioners, dishwashers, washing machines, among others. The conductive composite is injection moldable and can be formed into shapes suitable for various applications, including but not limited to appliances. In particular, the

structure of the conductive composite with electrodes at the edges does not require any additional manufacturing steps as required by Oppitz to form the electrodes at the faces of the insulating layer.

For example, in a refrigerator, various trays, shelves, compartments, and walls are examples of the “thermoformable component,” that the recited invention may enable. Such components that are self heating, as discussed in the application, are different from the heating elements such as discussed in Oppitz, in which heat is generated in the element, and passed on to a body *through the electrodes disposed on opposite sides of the heating element*. It is noted here that by virtue of the present invention, instead of having a separate heating component heating a body, heat is generated within the body part (i.e., self heating), eliminating the need for an additional heating component. In summary, Oppitz simply does not teach the conducting composite having electrodes at the edges and a face of the conductive composite extending between the edges.

Applicants respectfully submit that a *prima facie* case of anticipation cannot be supported by Oppitz against claims 1, 14 and 22. Therefore, Applicants submit that independent claims 1, 14 and 22 and their dependent claims are allowable and respectfully request the Examiner to reconsider the rejection of the claims.

Dependent claims

Claims 2-11, 15, 18-21 depend from independent claims 1 and 14, respectively. Applicants respectfully submit that insomuch as independent claims 1 and 14 are allowable, claims 2-11, 15 and 18-21 are allowable at least by virtue of their dependence from an allowable base claim.

Rejections Under 35 U.S.C. § 103

The Office Action summarizes claims 16-17 as rejected under 35 U.S.C. §103(a) as being anticipated by Oppitz in view of Todt et al. (U.S. Patent No. 6,599,446). Claims


16-17 depend from independent claim 14. Applicants respectfully submit that inasmuch as independent claim 14 is allowable, claims 16-17 are allowable at least by virtue of their dependence from an allowable base claim.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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